

What is claimed is:

1. An occlusion assembly for occluding an abnormal opening in tissue comprising:

a collapsible body configured to receive an expansion medium to expand to a deployed position, in which the occluding device occludes the abnormal opening; and

at least one biomarker coupled to the collapsible body and operative to indicate a position of the collapsible body upon insertion thereof into the abnormal opening.

2. The occlusion assembly of claim 1, wherein the body has a neck and at least one at end portion provided with an inner surface which is juxtaposed with the tissue in the deployed position of the body.

3. The occlusion assembly of claim 2, wherein the body is made from material selected from the group consisting of compliant, non-compliant and semi-compliant material and a combination of these materials.

4. The occlusion assembly of claim 3, wherein the body material is selected from group consisting of terephthalate (PET), polyamide (non-compliant), radiation cross-linked polyethylene, polypropylene, polyethylene terephthalate, latex, silicone, polyurethane and fluoro-elastomer and a combination of these materials.

5. The occlusion assembly of claim 3, further comprising an ingrowth enhancing material selectively coupled to the body to enhance an ingrowth of the body into a surrounding tissue, the ingrowth enhancing material being selected from the group consisting of polyester, nylon, polypropylene, polyethylene, knitted, Dacron mesh, woven Dacron mesh, polyurethane, and a combination of these materials.

6. The occlusion assembly of claim 5, wherein the ingrowth enhancing material bio-compatible material covers an outer surface of the at least end portion spaced from the opening.

7. The occlusion assembly of claim 6, wherein the ingrowth enhancing material covers the outer surface of and an inner surface of the body, the inner surface of the body being adjacent to the opening in the deployed position of the body.

8. The occlusion assembly of claim 2, wherein the body further includes an additional end portion coupled to the neck and spaced from the at least one end portion so that the body has a dumbbell shape.

9. The occlusion assembly of claim 2, wherein the body further has a shape selected from the group consisting of an H cross-section, Z cross-section, N cross-section, C cross-section, U cross-section, T cross-section, B cross-section, Z cross-section, N cross-section, P cross-section, Y cross-section and an X cross-section.

10. The occlusion assembly of claim 8, wherein the body further comprising at least one valve located along a path of the expansion medium and configured to controllably provide ingress and egress of the expansion medium into and out of the body.

11. The occlusion assembly of claim 10, wherein the at least one valve is mounted to the additional end portion located upstream from the neck portion, the occlusion assembly further comprising an additional valve mounted on an outer side of the at least one end portion spaced downstream from the neck and the inner surface of the at least one end portion.

12. The occlusion assembly of claim 11, wherein the at least one and additional valves have a body provided with a threaded valve nab, which is operative to provide the egress of the working medium from the body when in the deployed position thereof.

13. The occlusion assembly of claim 12, further comprising a retrieval device configured to threadedly engage the valve nab of the at least one valve in the deployed position of the body, at least one of the valve nab and the retrieval device being imbedded

with ferrous metal and the other one having a magnetically charged end portion to facilitate engagement between the valve nub and the retrieval device.

14. The occlusion assembly of claim 13, wherein the retrieval device has grasping forceps displaceable within the retrieval device to grasp the valve nub.

15. A method of occluding an abnormal opening formed in tissue, comprising the steps of:

- (a) implanting an occlusion device in the opening; and
- (b) delivering expansion fluid into the occlusion device so as to expand the occlusion device to a deployed position, wherein the occlusion device fills in the opening to prevent flow through the opening; and
- (c) simultaneously with step (a), monitoring displacement of the expansion device.

16. The method of claim 15, wherein the occlusion device includes a neck portion bridging opposite end portion, the step (b) comprising sequentially expanding a remote end portion, the neck and a proximal end portion, thereby compressing the tissue to sealingly close the opening.

17. The method of claim 16, further comprising a step of providing the opposite end portions each with an ingrowth-enhancing material.

18. The method of claim 17, wherein the ingrowth-enhancing material selectively covers an outer periphery of the opposite end portions.

19. The method of claim 16, wherein the step monitoring includes tracing at least one fluoroscopic band provided on the body and controlling a rate of delivery of the working medium into the body and a pressure within the body to provide the body a low profile characterized by a slight curve on an outer surface of the body which is spaced from the opening.

20. A surgical kit comprising:

a delivery/guide assembly including an outer guiding catheter displaceable toward the opening and a cannula configured to be traversed by expansion medium and displaced through the guiding catheter to extend across the opening; and

a plurality of occlusion devices configured to have different shapes and dimensions and selectively and removably attachable to a distal end of the cannula, each of the occlusion devices being configured to receive the expansion medium and expand to a deployed position, wherein a periphery of the occlusion device sealingly presses against a wall of the opening.